

### **REMARKS**

This Application has been carefully reviewed in light of the Office Action mailed December 3, 2004 ("*Office Action*"). Claims 1-20 are pending in the Application and stand rejected. Claim 10 stands objected to. Applicant amends Claims 1, 6, 7, 9 and 13-15, and cancels Claim 10 without prejudice or disclaimer. Applicant respectfully requests reconsideration and favorable action in this case.

#### **Claim Objection**

The Examiner objects to Claim 10. Applicant cancels Claim 10 without prejudice or disclaimer.

#### **Claim Rejections - 35 U.S.C. § 102**

The Examiner rejects Claims 1-3, 8, and 9 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,654,564 to Colbourne, et al. ("*Colbourne*"). Applicant respectfully traverses this rejection and submits that *Colbourne* does not describe, expressly or inherently, each and every limitation of the rejected claims. For example, Claim 1 recites:

A dispersion compensation system comprising:

a dispersion compensation module (DCM) operable to receive optical input and provide optical output having a negative dispersion relative to the optical input; and

a dispersion enhancement module (DEM) adapted to be optically coupled between the DCM and an optical fiber having a positive dispersion, the DEM operably including a plurality of dispersion enhancement fibers and operable to selectively increase the positive dispersion provided by the optical fiber by any of a plurality of amounts and to provide the optical input to the DCM, the optical input having a positive dispersion substantially equal to the positive dispersion of the optical fiber plus a selected one of the amounts of dispersion in the DEM.

As indicated above, *Colbourne* does not disclose, expressly or inherently, every element of Claim 1, as amended. *Colbourne* discloses dispersion compensation of an optical signal by "providing two filters having a sloped dispersion and opposite in sign over a

wavelength band.” (Abstract) *Colbourne* fails to disclose aspects related to dispersion enhancement fibers.

*Colbourne* does not disclose “a dispersion enhancement module (DEM) adapted to be optically coupled between the DCM and an optical fiber having a positive dispersion, the DEM operably including a plurality of dispersion enhancement fibers,” as recited in amended Claim 1. (emphasis added) In fact, the Examiner states that “[Colbourne et al.] do not disclose that the DCM comprises dispersion compensation fiber having a defined negative dispersion per unit length.” See *Office Action*, page 4. Because *Colbourne* does not disclose, expressly or inherently, every element of Claim 1, Applicant respectfully requests reconsideration and allowance of Claim 1, as amended.

Applicant’s dependent claims are allowable based on their dependence on the independent claim and further because they recite numerous additional patentable distinctions over the reference of the rejection. Because Applicant believes he has amply demonstrated the allowability of the independent claim over the reference of the rejection, and to avoid burdening the record, Applicant has not provided detailed remarks concerning these dependent claims. Applicant, however, remains ready to provide such remarks if it becomes appropriate to do so.

Independent Claim 9, as amended, recites certain limitations substantially similar to those recited in independent Claim 1. Accordingly, for at least the same reasons, Applicant also respectfully requests reconsideration and allowance of independent Claim 9.

Applicant respectfully requests reconsideration and allowance of independent amended Claims 1 and 9, and all claims that depend on these claims.

**Claim Rejections - 35 U.S.C. § 103**

**A. *Colbourne* fails to disclose any of the elements of Applicants’ independent claims.**

The Examiner rejects Claims 5 and 11 under 35 U.S.C. §103(a) as being unpatentable over *Colbourne*. Claims 5 and 11 depend from Claims 1 and 9, respectively. Because *Colbourne* fails to disclose any of the elements of Applicants’ independent claims, *Colbourne* cannot make obvious claims 5 or 11. Therefore, Applicants respectfully request

reconsideration and withdrawal of the rejections of Claims 5 and 11, which depend from independent claims shown above to be allowable.

**B. The *Colbourne-Ishikawa* combination fails to teach or suggest every element of any claim.**

The Examiner rejects Claims 4, 6, 7, 10, 13-17, 19, and 20 under 35 U.S.C. §103(a) as being unpatentable over *Colbourne* in view of U.S. Patent Application Publication No. 2002/0003646 to Ishikawa ("*Ishikawa*"). Applicant has canceled Claim 10 without prejudice or disclaimer. To establish obviousness of a claimed invention under § 103, all claim limitations must be taught or suggested by the prior art. M.P.E.P. §2143.03

Applicant's independent Claim 13 recites

A dispersion compensation system comprising:

a first optical amplifier;

a second optical amplifier;

a dispersion compensation fiber optically coupled between the first optical amplifier and the second optical amplifier, the dispersion compensation fiber operable to receive optical input from the first optical amplifier and provide optical output to the second optical amplifier, the optical output having a negative dispersion relative to the optical input; and

a dispersion enhancement module (DEM) adapted to be optically coupled between the first optical amplifier and an optical fiber having a positive dispersion, the DEM operably including a plurality of dispersion enhancement fibers and operable to selectively increase the positive dispersion provided by the optical fiber by any of a plurality of amounts and to provide the optical input to the first optical amplifier, the optical input having a positive dispersion substantially equal to the positive dispersion of the optical fiber plus a selected one of the amounts of dispersion in the DEM.

Applicant respectfully submits that *Colbourne* and *Ishikawa*, whether taken alone or in combination, fail to teach or suggest every element of this Claim. The *Colbourne-Ishikawa* combination fails to teach "a dispersion compensation fiber optically coupled between the first optical amplifier and the second optical amplifier, the dispersion compensation fiber operable to receive optical input from the first optical amplifier and provide optical output to the second optical amplifier, the *optical output having a negative dispersion relative to the optical input*," and "a dispersion enhancement module (DEM) adapted to be optically coupled between the first optical amplifier and an optical fiber having a positive dispersion, the DEM operably including a plurality of dispersion enhancement

fibers and operable to selectively increase the positive dispersion provided by the optical fiber by any of a plurality of amounts and to provide the optical input to the first optical amplifier, the *optical input having a positive dispersion substantially equal to the positive dispersion of the optical fiber plus a selected one of the amounts of dispersion in the DEM,*” as recited in Claim 13.

As teaching these claimed aspects, the Examiner cites to a discussion in *Ishikawa* regarding “variable dispersion compensator.” See *Ishikawa*, paragraph 0072. However, the variable dispersion compensator in *Ishikawa* simply is used to “finely compensate for dispersion in the transmission line” after a “fixed dispersion compensator” coarsely compensates for dispersion. See *Ishikawa* paragraph 0067. Applicant’s Claim 13 calls for an optical output from the dispersion compensating fibers that is negative relative to the input and that the dispersion enhancement module provides positive dispersion, which is “substantially equal to the positive dispersion of the optical fiber plus a selected one of the amounts of dispersion in the DEM.” Therefore, Applicant asserts that the *Colbourne-Ishikawa* combination fails to teach or suggest every element of Applicant’s Claim 13.

Additionally, Applicants submit that there is no teaching, suggestion, or motivation to combine or modify the teachings of the cited references either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. The Examiner must show some teaching, suggestion, or motivation to combine or modify the references either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. M.P.E.P. §2143.01. The factual inquiry whether to combine references must be thorough and searching. *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52 (Fed. Cir. 2001). This factual question cannot be resolved on subjective belief and unknown authority, but must be based on objective evidence of record. See *In re Lee*, 277 F.3d 1338, 1343-44 (Fed. Cir. 2002). “The mere fact that references *can* be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” M.P.E.P. §2143.01. Thus, the mere assertion that the teachings of one reference improve the teachings of another reference, as the Examiner asserts, does not provide the required suggestion to combine.

Applicant submits that neither *Colbourne* nor *Ishikawa*, either alone or in combination, provide a motivation to combine the references. In fact, *Colbourne* states that “dispersion compensating fibers cannot compensate for the wavelength dependence of dispersion.” (*Colbourne*, column 9, lines 15-16) As such, *Colbourne* teaches away from using a “dispersion compensating fiber.”

For at least these reasons, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection of independent Claim 13. For reasons analogous to these discussed with regard to Claim 13, Applicant respectfully requests the Examiner to reconsider and withdraw the rejection of independent Claim 16. Furthermore, because the remaining claims depend from independent claims shown above to be allowable over *Colbourne* and *Ishikawa*, Applicant respectfully request the Examiner to reconsider and withdraw the rejection of dependent Claims 4, 6, 7, 14, 15, 17, 19, and 20, as amended.

**C. The *Colbourne-Feinberg* combination fails to teach or suggest every element of any claim.**

The Examiner rejects Claim 12 under 35 U.S.C. §103(a) as being unpatentable over *Colbourne* in view of U.S. Patent Application Publication No. 2003/0031433 to Feinberg (“*Feinberg*”). Claim 12 depends from Claim 9, which is shown above to be allowable over *Colbourne*. The introduction of *Feinberg* fails to provide the elements of Applicants’ Claims 9 not taught by *Colbourne*. Because the *Colbourne-Feinberg* combination fails to disclose any of the elements of Applicants’ independent Claim 9, the *Colbourne-Feinberg* combination cannot make obvious Claim 12. Therefore, Applicants respectfully request reconsideration and withdrawal of the rejection of Claim 12.

**D. The *Colbourne-Ishikawa-Feinberg* combination fails to teach or suggest every element of any claim.**

The Examiner rejects Claim 18 under 35 U.S.C. §103(a) as being unpatentable over *Colbourne* in view of *Ishikawa* as applied to Claims 4, 6, 7, 10, 13-17, 19, and 20 above, and further in view of *Feinberg*. Claim 18 depends from Claim 16, which is shown above to be allowable over *Colbourne* and *Ishikawa*. The introduction of *Feinberg* fails to provide the elements of Applicants’ Claims 16 not taught by *Colbourne* or *Ishikawa*. Because the

*Colbourne-Ishikawa-Feinberg* combination fails to disclose any of the elements of Applicants' independent Claim 16, the *Colbourne-Ishikawa-Feinberg* combination cannot make obvious Claim 18. Therefore, Applicants respectfully request reconsideration and withdrawal of the rejections of Claim 18.

**CONCLUSION**

Applicant has made an earnest attempt to place the Application in condition for allowance. For the foregoing reasons, and for other reasons clearly apparent, Applicant respectfully requests full allowance of all pending claims. If the Examiner feels that a telephone conference or an interview would advance prosecution of the Application in any manner, the undersigned Attorney for Applicant stands ready to conduct such a conference at the convenience of the Examiner.

No fee is believed to be due. However, the Commissioner is hereby authorized to charge any extra fees or credit any overpayments to Deposit Account No. 02-0384 of BAKER BOTTS L.L.P.

Respectfully submitted,

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